

RESEARCH DATA EXCHANGE

Release 2.2

Release 2.2 of the Research Data Exchange (RDE) is now available. New connected vehicle and road weather data from the 2014 ITS World Congress in Detroit is available for download from the RDE website, as well as a link to the Weather Data Environment. The RDE also features versioning and new features to facilitate searches for particular types of data. Researchers, application developers, and others are invited to use the data on the RDE to accelerate the integration of connected vehicles into ITS related research.

RDE Background

The RDE is a transportation data-sharing system that makes available archived and real-time data from multiple sources and multiple modes. This data-sharing capability supports the needs of ITS researchers, application developers, and others, while reducing costs and encouraging innovation. Data accessible through the RDE is quality-checked, well-documented, and freely available to the public.

The RDE provides access to ITS data sets from multiple sources including connected vehicles, probe messages, traffic monitoring and reporting devices (e.g., volumes, speed, and crashes), incidents, traffic signals, weather sensors, and transit vehicles. These data sets allow for a wide range of issues and factors to be considered or used for analysis and research.

The RDE also contains forums for researchers to post projects, comment on data, and contribute analyses and data.

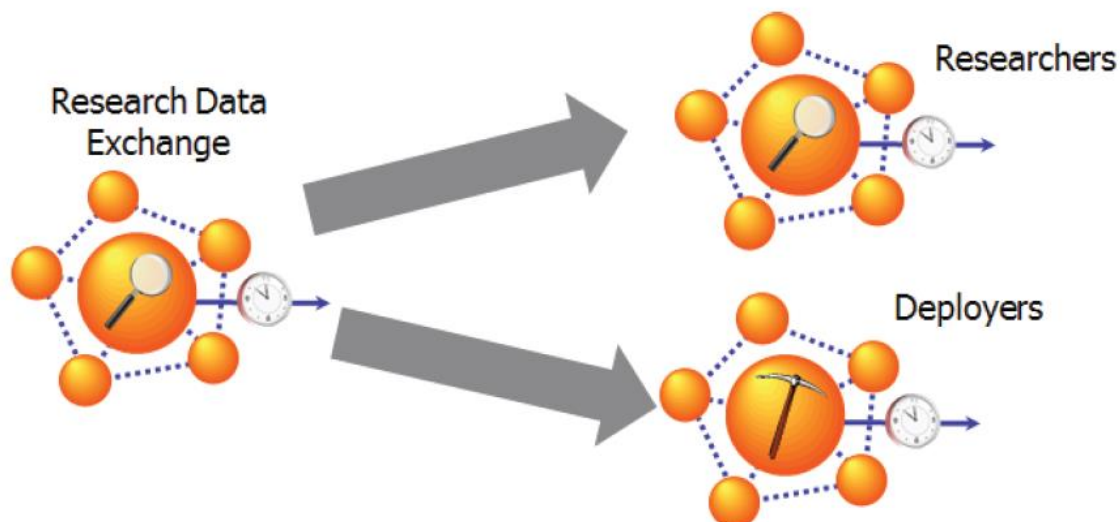
www.its-rde.net

Purpose:

The purpose of the RDE is to provide a variety of data-related services that support the development, testing, and demonstration of multi-modal transportation mobility, weather, and environmental applications.

Objectives:

- Enables systematic data capture from connected vehicles (automobiles, transit vehicles, and trucks), mobile devices, and infrastructure
- Performs data quality checks and provides clean, well-documented data sets that are relevant to research
- Integrates data from multiple sources into data environments to be used by multiple applications for transportation management and performance measurement



Data in the RDE used for Research and for Prototype Deployment

New Data in RDE Release 2.2

Connected Vehicle and Queuing Data from the ITS World Congress in Detroit

Nine instrumented vehicles drove around the convention center during three days of the September 2014 ITS World Congress. The new data environment on the RDE contains:

- Basic Safety Messages (BSMs) from the instrumented vehicles, obtained by subscribing to the data clearinghouse.
- Signal Phase and Timing (SPaT) messages from instrumented intersections around the convention center, obtained by subscribing to the data clearinghouse.
- Traveler Information Messages broadcast by Roadside Units during the World Congress.
- Queue counts collected manually by lane at the intersection of Larned and Shelby Streets, including counts of how many instrumented vehicles were in the queue each signal cycle.
- Videos of queues at the Larned and Shelby intersection.

This data environment will be useful for developing and testing connected vehicle applications, particularly in the area of intersection queue length prediction and detection.

Weather and Environmental Data from the ITS World Congress

During the World Congress, a specially instrumented demo van drove short loops on Belle Isle. In loop 1, road weather connected vehicle data was captured by the demo van and transmitted to the Weather Data Environment. In loop 2, advisory warnings (e.g., wet pavement or slippery roads), were issued, based on road weather conditions artificially generated on site.

The new data environment on the RDE contains:

- Road weather-related observation data
- Advisory warnings

New Features of RDE Release 2.2

- Version control to track updated versions of data. Whenever a data file is downloaded, the user will also receive a table listing the most recent version of each data set in the data environment.
- A live link to the Weather Data Environment (WxDE) containing recent road weather observations from around the U.S. and Canada. The WxDE is the first data environment to be federated with the RDE; more federated databases will be linked to the RDE in the future.
- A graphical-based search capability, where users may select attributes for searching across data environments using a graphical representation of the search attributes.
- The ability to perform text searches across all the standardized metadata documentation files. The search will return a list of all the data environments in the RDE for which the matching metadata contains the desired search phrase.
- The ability to “like” or share file with social media, including LinkedIn, Twitter, Facebook, and GooglePlus.

New data sets are continuously being added to the RDE as they become available from the U.S. Department of Transportation (USDOT) and other projects. ITS researchers are invited to submit data sets for potential inclusion. The USDOT has developed procedures for assessing the value and quality of potential data to be added to the RDE. When a submitted data environment passes these criteria, RDE management adds the data to the RDE.

For more information about this initiative, please visit www.its.dot.gov/data_capture/index.htm or contact:

Jon Obenberger, PhD, P.E. Sr. Transportation Research Engineer
Federal Highway Administration
Office of Operations (R&D) | (202) 493-3265
jon.obenberger@dot.gov

Gene McHale, PhD, P.E. Team Leader
Federal Highway Administration
Office of Operations (R&D) | (202) 493-3275
gene.mchale@dot.gov